

IN THE CLAIMS:

Please amend claims 21, 24, 33, and 37 as follows. Please cancel claims 22, 23, 35, and 36 without prejudice.

Claims 1-20 (Cancelled)

21. (Currently Amended) A method for locating a mobile station in a mobile telecommunication system comprising the steps of:

using fixed transmitting stations for positioning a target mobile station by transmitting a location signal from each fixed transmitting station to said target mobile station and receiving a response to said location signal from said target mobile station by said fixed transmitting stations,

using at least one relay station which is configured to receive said location signal from the corresponding fixed transmitting station and said response from said target mobile station, and to forward said location signal and said response to said target mobile station and said fixed transmitting stations, respectively, in case a direct transmission from or to at least one of said fixed transmitting stations is not available,

determining a position of said at least one relay station,

determining a distance between said target mobile station and the fixed transmitting stations and/or the at least one relay station on a basis of said location signal, and

locating a position of said target mobile station on a basis of the determined distances,

wherein said at least one relay station is a movable mobile station, and
wherein a distance D between said at least one relay station and said target mobile station is calculated based on the following equation

$$\underline{D = c\Delta t + \beta d_{\max}},$$

wherein c is a light velocity, Δt is a propagation delay of the location signal, β is in a range from -1 to +1, and d_{\max} is a maximum distance by which the at least one relay station can move during Δt .

Claims 22 and 23 (Cancelled).

24. (Currently Amended) The method according to claim ~~23~~ 21, wherein said distance d_{\max} is determined by the following equation:

$$d_{\max} = v_{\max}\Delta t + e,$$

wherein v_{\max} is a maximum velocity of the at least one relay station and e is a measurement error.

25. (Previously Presented) The method according to claim 21, comprising the step of judging whether a request for a location of said target mobile station is authorized or not.

26. (Previously Presented) The method according to claim 25, wherein for said judging step subscriber data of a data base are used.

27. (Previously Presented) The method according to claim 21, comprising the step of synchronizing said fixed transmitting stations and said target mobile station involved in the positioning before performing said locating step.

28. (Previously Presented) The method according to claim 21, wherein the calculation of the location of said target mobile station is performed on a basis of any positioning method based on radio wave propagation data.
29. (Previously Presented) The method according to claim 28, wherein said positioning method based on radio wave propagation data is one of TDOA, TOA and TA.
30. (Previously Presented) The method according to claim 21, wherein said method is carried out in a WCDMA network.
31. (Previously Presented) The method according to claim 21, wherein each positioning request is provided with a priority level and, in case of a plurality of simultaneous positioning requests, the plurality of simultaneous positioning requests are processed in dependence on the priority level.
32. (Previously Presented) The method according to claim 21, wherein Opportunity Driven Multiple Access (ODMA) is used as a protocol for transmitting said location and response signals via said at least one relay station.
33. (Currently Amended) A radio network of a mobile telecommunication system, comprising:
- fixed transmitting stations which are configured for positioning a target mobile station by transmitting a location signal from each fixed transmitting station to said target mobile station and receiving a response to said location signal from said target mobile station by said fixed transmitting stations,
 - at least one relay station which is configured to receive said location signal from the corresponding fixed transmitting station and said response from said target mobile station, and to forward said signals to said target mobile station and said fixed

transmitting station, respectively, in case a direct transmission from and to at least one of said fixed transmitting stations is not available, and

location means for determining a position of the at least one relay station and determination means for determining a distance between said target mobile station and the fixed transmitting stations and/or the at least one relay station on a basis of said location signal, and

wherein the ~~radio network is configured~~ location means is configured to locate the position of said target mobile station on a basis of the determined distances,

said at least one relay station is a movable mobile station, and

said determination means calculates said distance D between said at least one relay station and said target mobile station based on the following equation

$$D = c\Delta t + \beta d_{\max},$$

wherein c is the light velocity, Δt is a propagation delay of the location signal, β is in a range from -1 to +1, and d_{\max} is a maximum distance by which the at least one relay station can move during Δt .

34. (Previously Presented) The radio network according to claim 33, wherein said determination and location means is a mobile location center.

Claims 35 and 36 (Cancelled).

37. (Currently Amended) The radio network according to claim ~~36~~33, wherein said distance d_{\max} is determined by the following equation:

$$d_{\max} = v_{\max}\Delta t + e,$$

wherein v_{max} is a maximum velocity of the at least one relay station and e is a measurement error.

38. (Previously Presented) The radio network according to claim 34, wherein said mobile location center is further configured to judge whether a request for a location of said target mobile station is authorized or not.

39. (Previously Presented) The radio network according to claim 38, wherein said mobile location center is configured to use subscriber data of a data base (HLR).

40. (Previously Presented) The radio network according to claim 33, wherein said radio network is a WCDMA network.

41. (Previously Presented) The radio network according to claim 33, wherein each positioning request is provided with a priority level and in case of a plurality of simultaneous positioning requests, said mobile location center is configured to process the plurality of simultaneous positioning requests in dependence on the priority level.

42. (Previously Presented) The radio network according to claim 33, wherein Opportunity Driven Multiple Access (ODMA) is used as a protocol for transmitting said location signal via said at least one relay station.